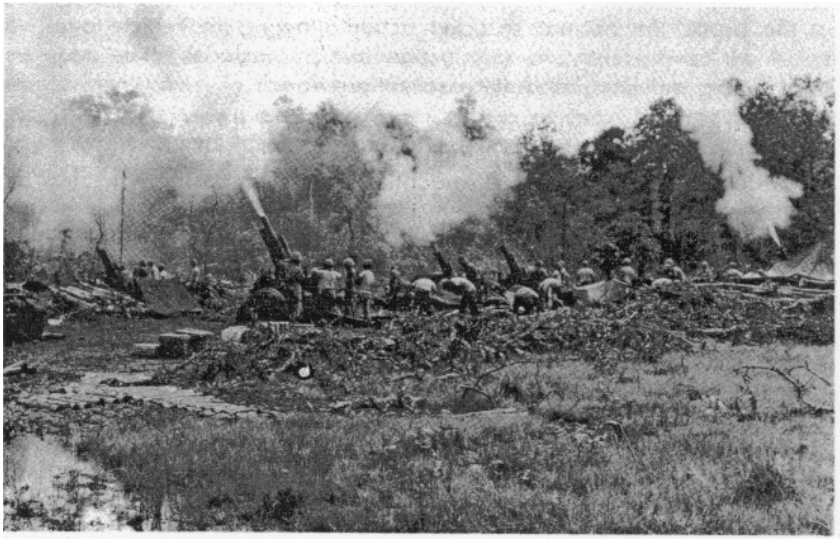
Counterinsurgency Lessons Learned



The following material finds its origin in information extracted by the U. S. Army Artillery and Missile School from correspondence which has passed between U. S. artillery units and USAAMS, efforts by departments of the School to solve problems experienced by units in counterinsurgency operations, and after action reports distributed by the Department of the Army.

VEHICLE RECOVERY AND CANAL-CROSSING TECHNIQUES

Field experience has demonstrated the need for developing means for expediting canal crossings, especially for the M113 armored personnel carrier and the M114 command and reconnaissance vehicle.

Several effective techniques of expediting vehicle recovery and canal crossings have been developed.

The capstan-anchor method of vehicle recovery is a successful self-recovery method of exiting steep-banked canals. This expedient features steel adapters permanently bolted to the vehicle drive sprockets and aluminum capstans fastened to the adapters by "T" lugs. A 4¾-inch arc must be cut from the vehicle shroud and end cover in order to mount the adapter; however, this does not reduce the vehicle's swimming capability. Auger-type ground anchors are used as "deadmen." Augers of either 6-or 8-inch diameter and auger eyes or holes are permanently affixed to both ends of steel pipes 6 feet in length. Timbers are buried at ground level directly in front of the ground anchor eye to distribute the pull weight over a large area in order to decrease ground pressure

and also to avoid the possibility of bending the anchor shafts. Nylon rope, 1 inch in diameter, is fastened to the capstans and passed through the eyes of the imbedded anchors, and all slack is removed. The vehicle is then placed in low range and slowly proceeds out of the mired area or up the bank, the normal sprocket action allowing the vehicle to recover itself. A kit is presently in production which includes the adapters, capstans, rope, anchors, and necessary hardware.

A fabricated push bar has been developed to facilitate M113 crossings of small canals. This method was developed to replace the log-pushing method that required dismounted troops to position the log between the pushed and pushing vehicles. The push bar consists of two oblong steel adapters mounted on the M113 tow eyes into which 4- by 4-inch mahogany timbers are fitted. The other ends of the timbers are inserted into two oblong steel adapters, which, in turn, are fastened to the "push foot." The push foot itself is composed of a rectangular steel plate mounted with serrated track pads, which provide cushioning and nonslip qualities to the foot. A cable connected to the push foot and the top of the vehicle chassis is used to position the push bar. When an M113 vehicle is mired in, or cannot exit unassisted from, a canal, an M113 equipped with the push bar is used to push the vehicle from the canal. The push bar is carried atop the vehicle until needed. One or more M113 carriers equipped with push bars have been used to push a mired carrier across paddies, bogs, and narrow canals.

Balk aluminum bridge sections, 8 and 15 feet in length, are being used to span short gaps, thereby enabling vehicles to cross them. They are also used to construct corduroy rods to assist vehicles in exiting canals.

Demolitions are also being used as an aid in exiting canals. Demolitions are used to breach an exit bank of a river or canal that is too steep for a vehicle to climb. An exit site prepared by use of demolitions, however, is not necessarily suited for self-exit and may often require a push or pull expedient.

The use of logs or timbers placed atop an M113 when it is necessary to lift or pull another vehicle is another field expedient. The tow cable, attached to the mired vehicle, is run over the logs on top of the M113 which is located at the edge of the bank. The cable is then attached to another M113, which accomplishes the towing.

The methods of vehicle recovery and canal-crossing are many and are limited only by the resourcefulness of the individuals involved.

FUZE CAN OPENER

During recent months several reports indicate that cannoneers have suffered lacerations when opening M513 CVT (controlled variable time) fuze cans. Upon investigation, it became apparent that the opening key provided with each can is too small to maintain a straight rolling tear when torque is applied. Also, in many cases, the tapered end of the opening strip is too brittle and snaps off when the key is attached.

Subsequent tearing of the canisters with pliers or screwdrivers in an effort to remove the lids resulted in the lacerations. These cuts were usually incurred during the heat of combat, resulting in loss of time if first aid was applied or possible infection if the individual continued to work.

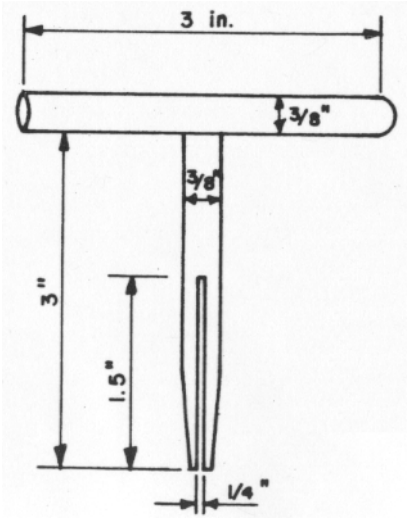
In an effort to correct the situation, this unit has devised the reusable opening key shown in the figure below. The desirable features of the key are its large size and ease of use. The top of the "T" is wide enough to provide increased leverage, and the leg is long enough to roll evenly around the side of the can.

Since using this key, personnel of the unit have suffered no lacerations. In addition, the opened cans are reusable. Formerly, the majority of the fuze cans were so mutilated after being opened that they were unfit for repackaging any CVT fuzes that were not used. Now the fuzes can be put back in their containers and sealed with tape.

The question may be asked, "How does one remove the roll of metal from the key?" Our simple solution is to insert the leg of the key into the slot of an engineer stake and pull the key from the roll. As we utilize engineer stakes to support our ammo tarpaulins in the howitzer section parapets, the removal procedure is accomplished in the immediate area with minimum effort.

Our current program calls for two such keys per howitzer section. The keys are made of ⅜-inch-diameter steel rod, and the two pieces are easily cut and welded together. Tapering the leg facilitates removal of the roll of metal.

Finally, an equipment improvement recommendation has been forwarded through channels requesting that a more functional key be provided with the canisters.



1. Cut two 3-inch pieces of ⅜-inch-diameter steel rod.
2. Weld to form a "T".
3. Cut leg of "T" down center with hacksaw.
4. Taper leg with file to ¼-inch-diameter.

Figure 1. Diagram of "T" key.

M107/M110 ELEVATING SLIP CLUTCH ADJUSTMENT

Some artillery units have experienced problems with the traversing drive assembly slip clutch and the elevating drive assembly slip clutch for the M107/M110. It was found that some of the torque settings were greater or less than the torque settings stated in TM 9-2300-216-35/2, paragraphs 23 and 59.

The U. S. Army Tank Automotive Command (ATAC) has authorized weekly instead of bi-monthly inspections of weapons in Southeast Asia by Field Maintenance. During these inspections, Field Maintenance should test the torque on both the traversing and elevating slip clutches. Tests by Field Maintenance must be made with a torque wrench before applying any adjustment as authorized and described in figures 15 and 19, pages 31 and 35, of TM 9-2300-216-35/2.

ATAC has verified the slip clutch settings listed in the manual and no changes are required.

CHAPARRAL ROAD TESTED

The U. S. Army's Chaparral air defense guided missile system has completed a rugged 100-mile series of road tests aimed at determining the effects of shock and vibration.

The system tested was the first production configuration model produced by Aeronutronic. Testing was conducted at the Naval Ordnance Test Station, China Lake, Calif.

Chaparral fire units produced by Aeronutronic and the experimental XM-730 tracked vehicle produced by the FMC Corporation, San Jose, Calif., were driven over rugged terrain to determine the effects of shock and vibration on the entire system. Army gunners occupied the inclosed, Aeronutronic-constructed firing turrent mount in several of the tests. The panel shown on the side of the vehicle recorded test data.

The missile system, selected recently by the Army as one of two major weapon systems to provide field commanders with low altitude air defense in forward battle areas, has been successfully test fired at White Sands Missile Range, N. M.

Chaparral is an infrared, heat-seeking missile system consisting of a missile launcher and mount and fires modified air-to-air missiles in a ground-to-air configuration. The fire unit is self-contained and can be mounted on any of several types of vehicles including the self-propelled XM-730, railroad flat cars, flat bed trucks or trailers or can be ground mounted.

Gunners in the Chaparral turret mount aim the missile to fire. The missile automatically guides on the target's heat source after launch.